EDGE CONTROLLER & SMART GATEWAY

KNO1-PLC — control, I/O, and edge compute in one sealed unit

Deploy as the full controller on new equipment, or as a read-only smart gateway beside the PLCs, engine controllers, and drives already on it. One device replaces the panel, I/O rack, and enclosure in qualifying installations.

PRELIMINARY — IP69 PRODUCTION UNIT IN TEST · PILOT HARDWARE AVAILABLE

Compute module	AMD Xilinx Kria K26 SOM — quad-core Arm Cortex-A53 @ 1.33 GHz application processor, dual-core Cortex-R5F @ 533 MHz real-time processor, AI acceleration up to 1.4 TOPS INT8
Memory & storage	4 GB DDR4 (64-bit @ 2400 Mb/s) · 16 GB eMMC · 512 Mb QSPI flash
Operating system	Linux Ubuntu Server with full development stack
I/O	76 configurable channels: 20 high-power (5–36 VDC, 12 A per channel) + 56 general-purpose (4-20 mA, 0-25 mA, 0-5/0-10 VDC, resistance 400 Ω–4 MΩ, frequency, sub-1 VDC with microvolt resolution)
Analog front end	Precision FET-input instrumentation stage, 0.5 mV max offset, industrial grade
Communication	2× LAN 10/100/1000 (3rd optional) · RS232 · RS485/RS422 · CAN — all on sealed M12 connectors
Programming	IEC 61131-3 (LD, FBD, ST, SFC) via native CODESYS · Python · C · C++
Agent interface ENGINEERING PREVIEW	Model Context Protocol (MCP) server on-device, exposing I/O, diagnostics, alarms, and setpoints to MCP-compatible agents. Engineering preview — availability confirmed per deployment.
Security	TPM 2.0 hardware root of trust · IEC 62443-ready
Environmental	IP69 ingress rating · -40 to 185 °F (-40 to 85 °C) system rated · sealed M12 throughout
Power	9–36 VDC input (24 VDC @ 5 A) · ~15 W typical draw
Envelope	12" × 10.15" × 1.74" — panel or surface mount

Mode 1 — Full controller

IP69 UNIT IN TEST

Deterministic IEC 61131-3 control on real-time cores, edge compute on application cores, 76 I/O at the machine. Pilots begin on interim hardware and swap to the sealed unit.

Mode 2 — Smart gateway

PILOT HARDWARE AVAILABLE

Read-only beside your existing controls. Native KNO1-PLC stream today; OPC-UA and Modbus drivers in development. Store-and-forward: 50 ms local logging, hourly forwarding.

Driver status: KNO1-PLC native stream — available · OPC-UA / Modbus — pilot · CAN J1939, EtherNet/IP, PROFINET — confirmed per deployment. Certification roadmap published at knocesystems.com/security. Specifications subject to change until production release. All third-party names are trademarks of their owners; references describe protocol connectivity only.